

Assessment of Food Safety Knowledge, Attitude and Hygienic Practices among Kitchen Staff at the Anum Presbyterian and Akwamuman Senior High Schools in Asuogyaman District

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Abstract: Food safety knowledge, attitude and hygienic practices are important in preventing food borne illness. Prevention of food borne illness is one of the primary responsibilities of everybody. Food borne illness outbreaks in most schools are often caused by lack of knowledge on hygienic practices and lack of food safety and quality among kitchen staff of senior high schools. The purpose of this study was to assess food safety knowledge, attitude and hygienic practice among kitchen staff in Senior High Schools. The sample for the study consisted of 46 female and 19 males. The target population for this study comprised of all kitchen staff in the selected schools in the Asuogyaman District of Eastern Region. Questionnaire in the form of likert format was used to collect data. Purposive sampling technique was employed to select the study respondents. The data was analysed descriptively using tables, frequencies, percentages, means and standard deviation. Findings indicated that the level of knowledge on food safety by the kitchen staff was moderate. In addition, it was found out that the common attitude of the kitchen staff on food safety was that kitchen staff who have abrasions or cuts on their hands should not touch foods without gloves. Based on these findings it was recommended that, school administrators should organize workshops or seminars for kitchen staff in order to boost their knowledge, attitudes and practices in the food safety.

Keywords: Food Safety, Hygienic Practices, Staff attitudes, Food borne illness, Ghana

I INTRODUCTION

Food is a critical contributor to physical well-being and a major source of pleasure; worry and stress [1]. As a result, consumers' confidences are more dependent on the quality assurance promised by the food provider. One of the required outputs is to ensure that the food produced is safe to be consumed. According to [2], food is an important basic necessity and its procurements, preparation and consumption are vital for the sustenance of life. However, food borne diseases have become a widespread and growing public health concern both in developed and developing countries. The consumer's need for food safety is greatly increasing but the levels of food safety knowledge still remain low. The lack of food safety knowledge often results in food related health problems and some consumers have limited food safety knowledge and so exhibit poor handling practices. According to Food and Agriculture Organisation [3], food safety is defined as "the degree of confidence that food will not cause sickness or harm to the consumer when it is prepared, served and eaten according to its intended use". This means that any routines or ways should be followed to avoid potentially severe health hazard. There is a strong

consumer awareness of food quality and safety and this continues to increase. International trade in food has also increased the risk of infections agents being disseminated from the original point of production to locations thousands of kilometers away. The consequence of this is that there is an increased risk to human health, as well as implications for international trade in food. As a result, there has recently been a realization in many countries of the need for an integrated approach to food safety.

Food safety is improved by defining the basic concepts, hazard and toxicity. 'Hazard' is the relative probability that harm or injury will result when the substance is used in a proposed manner and quantity while 'toxicity' is the capacity of a substance to produce harm or injury of any kind under any conditions. Food or ingredient is safe. It should not be based on its inherent toxicity [3]. Food safety is a vital issue both in developed and developing countries given that food borne illnesses contribute to millions of illnesses and thousand deaths annually [4].

In Ghana, the most commonly occurring food borne diseases are typhoid, cholera and diarrhoea and it has been established that food born disease are the fourth largest causes of illnesses after malaria. The entire world statistics on food borne outbreak showed that the cases of food borne

illness increase year by year. According to [5], a total number of outpatient cases reported with food borne illness in Ghana is 420,000 per year with an annual death rate estimated at 65,000 costing a total of 69 million US dollars to the Ghanaian economy. Statistics available at Asuogyaman District Health Directorate in the Eastern region of Ghana indicated that food borne diseases are prevalent in the district. In 2011, there were 567 reported

typhoid cases in the district. Diarrhoea and cholera statistics were also 603 and 493 respectively, [6]. Many food borne illnesses have origin in the many places and it has caused harm to mankind that effective control needs to be instituted. This emphasizes the importance of consumer education of the communication of information on emerging food borne hazard to consumers [7].

II LITERATURE REVIEW

The Concept of Food Safety

Food can be said to be safe when it contains no hazardous substances that could be injurious to health [8]; [9]. This can be achieved or assured when stringent and careful interventions are put in place to prevent, reduce and or remove possible hazards to acceptable level through effective training on methods and technologies available. [10], defined food safety as any food item devoid of any biological, chemical or physical hazards capable of causing harm to the consumer. The presence of these harmful contaminants not originally present in the food is believed to be introduced by humans although some do occur naturally [4]. Food safety also refers to all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer. This makes food safety non-negotiable that is, the consumer has no control over the consequences once contaminated food is ingested.

2.2 Significance of Food Safety

[11], claims that food safety is an increasingly important public health issue. Food borne diseases are widespread, which not only threatens public health, but also significantly reduces the economic productivity. According to World Health Organization's estimation, food borne and water borne diarrheal diseases kill approximately 2.2 million people annually [11]. About 13 million children under the age of five die each year from infections and malnutrition, most often attributed to contaminated food" (World Health Organization, 2002). Therefore food safety issues must be given much attention in our various institutions where food are prepared and served.

The costs of the food contamination are a social and economic burden to the community. In the United States, the estimated annual medical costs/productivity losses due to the seven major food borne pathogens range from \$6.6 billion to \$37.1 billion and five hundred million dollars was spent due to cholera [11].

Food Safety Measures

Accurately determining which changes in food are only quality change and which changes indicate possible microbial spoilage by pathogenic bacteria is difficult for

many consumers and manufacturers. Similarly, waiting to check for the safety of a finished product is equally difficult and may be costly too. A well-structured, preventive approach that controls processes is cost effective and therefore preferable in achieving food safety [12]. With such an approach many potential food hazards are controlled by adopting good hygienic practices. An important preventive approach that has been identified is the Hazard Analysis and Critical Control Points (HACCP). HACCP is a seemingly difficult name for a simple and effective way to ensure food safety.

The principles of HACCP by right should be embodied in code of practice, which serve as a guide for inspection officers. The code contains a series of requirements and practices to be observed in the preparation and sale, in the street, of foods and beverages for direct consumption. The code of practice normally should be based on the food law that operates in any particular country, which should also derive from the recommended international code of practice with few additions to address national differences in terms of culture. Codified hygienic practices for food service workers embody all aspects of food preparation. These include: the quality of raw materials; storage of such ingredients, general sanitation of the area where food is prepared, the condition of equipment to be used and the hygienic practices of the food handlers themselves [13].

Food Safety Knowledge

Knowledge is associated with current practices, which in turn affects willingness to change current practices if it is learned that current practices are unsafe [14]. This means that new knowledge acquired or learned will help one to change his old ways of doing things. However, actual food handling practices are known to differ from self-reported practices [15]. [16], on the other hand emphasized that the main factors responsible for the outbreaks of food poisoning were inappropriate storage, inadequate cooking or reheating, and cross-contamination. Particular attention should therefore be given to the importance of time and temperature control, personal hygiene, cross contamination, sources of contamination and the factors determining the survival and growth of pathogenic organisms in food [17].

Food safety attitude of Kitchen Staff in Senior High Schools

The responsibility of having positive attitude towards food safety does not only lie on the shoulder of the management team but on food handlers and even any consumer should take their own initiatives to enhance their knowledge in the matter and profiling themselves to be more positive. [18], found that food handlers perceive many barriers to implementing food safety programs. Food handlers noted that lack of time, training, and resources, along with their attitude, availability of hand sinks, and inconveniently located resources were barriers to hand washing within a foodservice operation [3]. It is undeniable that not all of educational institutions in the developing countries like Ghana which involved in the culinary field is equipped with the proper and more manageable facilities. It is well-known that improving knowledge does not necessarily lead to changes in attitude or behaviour [19]. However, the gap between knowledge and behaviour is regarded as an affective dimension [20]. Various studies have shown that the efficacy of training in terms of changing behaviour and attitudes to food safety is questionable [19].

A review of literature found only one research study that focused specifically on food safety knowledge of college students in United States of America [20]. Eight hundred twenty-four students in food-related and non-food related disciplines, in three geographic locations, completed a food safety questionnaire. Results indicated gaps in college students' knowledge. Students scored poorly when quizzed whether unsafe foods could be identified by the way they looked and smelled. Students also incorrectly indicated that unopened processed meats could be refrigerated long term without any risk of causing food borne illness. While focused on the challenges of obtaining a college education, many students eat whatever and whenever it is convenient. They may be unaware of proper food handling practices needed to avoid food borne illness [20]. [21], surveyed college students and found that students rarely check temperatures of their refrigerators and freezers. Twenty students also exhibited risky food consumption behaviours. An alarming 7% of the college sample consumed either raw fish or raw hamburger. Additionally, students consumed raw eggs (12.7%), unpasteurized eggnog (6.4%), and cookie dough (5.8%). When asked how they determined serving temperatures of leftovers, 24.3% of students indicated they relied on touching or feeling the food. Only 6% relied on temperature readings, and another 3% relied solely on microwave settings [21].

Hygienic Practices

Treatment of Water

In 2004, Wright and others conducted a study that showed that policies that aim to improve water quality through source improvements may be compromised by post-collection contamination. Safer household water storage and treatment is recommended to prevent this, together with point-of-use water quality monitoring [18].

Sanitation Facilities

Looking at the need to improve existing sanitation, [22], indicated that improving domestic hygiene practices is potentially one of the most effective means of reducing the global burden of diarrhoea diseases in children. If hygiene promotion is to succeed, it needs to identify and target only those few hygiene practices which are the major source of risk in any setting. It added that any behaviours which prevent stools from getting into the domestic arena, the child's main habitat, are likely to have a greater impact on health than those practices which prevent pathogens in the environment from being ingested. Hence safe stool disposal, a primary barrier to transmission, may be more important than hand-washing before eating.

[23], emphasized that households with adequate excreta disposal were significantly more likely to be in the "mainly hygienic" group. The prevalence of diarrhoea among children for whose parents mainly practiced unhygienic behaviour recorded twice higher cases of diarrhea as compared to those children belonging to the "mainly hygienic" group. Improving sanitation facilities has been associated with reduction in diarrhea.

[24], indicated the factors affecting quality of care given by caregivers and their ability to maintain a hygienic environment. These include the availability of water and sanitary facilities. [25], on the other hand indicated that improvements in sanitation reduce the transmission of pathogens that cause diarrhoea by preventing human faecal matter from contaminating environments.

Hand Washing

The most common source of contamination is humans [26], more specifically food contact with hands [27]. If a food worker is not clean, the food can become contaminated [28]. Food workers may transmit pathogens to food with hands that are contaminated with organisms from their gastrointestinal tract; therefore hand contact with food represents a potentially important mechanism by which pathogens may enter the food supply [28]. Foods are edible items safe to eat without further cooking [29]. Because the transmission of pathogens from food worker hands to food is a significant contributor to food borne illness outbreaks, improvement of food worker hand washing practices is critical [29]. [22], also affirmed that washing hands with soap and water reduces the risk of diarrheal diseases by 47% and hand washing promotion could save millions of lives. This called for better designated trials to further measure the impact of hand washing on diarrhoea diseases in developing countries. Therefore, personnel must be shown how to properly wash hands and at the appropriate instances of when to wash their hands. Simply touching human skin can transfer *Staphylococcus aureus*, a dangerous bacteria causing

Staph infection, from one surface to another; as a result of touching human skin then handling food, this simple action can pass *Staphylococcus aureus* from skin to food making food potentially hazardous [29].

According to [30], to ensure proper hand washing you must wet your hands under running water of at least 100°F, apply soap, vigorously scrub hands and arms for at least 20 seconds, clean under fingernails and between fingers, rinse thoroughly under running water of at least 100°F, then dry hands and arms with single-use paper towels. Personnel should not be allowed at any time to think or be given the impression that gloves and gel hand sanitizer are adequate substitutes for washing one's hands with soap and hot water [30]. Foodservice workers should wash their hands frequently and in the proper manner. Shockingly, research has shown that as many as 60% of food handlers do not wash their hands properly or often enough [31]. In a study conducted on catering food safety, hand hygiene malpractice occurred more frequently than malpractice for cleaning surfaces and equipment as well as malpractice of washing utensils ([32].

[32], further found that hand washing was poorly carried out after food handlers touched their face/hair and on entering the kitchen. These actions were performed adequately only on 9% of occasions where food handlers touched their face/hair and 14% of required occasions where food handlers entered the kitchen.

III RESEARCH DESIGN AND METHODS

Research Design

The research design is used to structure the research, to show all the major parts of the research project. Research design is also the framework for the research plan of action. For the purpose of this paper, descriptive technique was used. This technique describes phenomena as they exist. It is used to identify and obtain information on the characteristics of a particular problem or issue. Descriptive design was again selected because it has the advantage of producing good amount of responses from a wide range of people. Also, this design provides a meaningful and accurate picture of events and seeks to explain people's perception and behavior on the basis of the data collected [35]. The advantage with this design is that it helps to find views as they are in their natural setting. The design however has some few flaws of which the researches must be aware and try to reduce its magnitude. Some of the questions which may not be understood by the respondents would let them give answers that may not be expected by researchers. Another problem is the likelihood for respondents to state something which is convenient to them.

Population of the Study

[36]. defined population as the group of people from which a sample can be drawn from. According to [37] population refers to the set of individuals (subjects) event having common visible characteristics which the researcher is

Food handlers must be aware of the appropriate instances in which they need to wash their hands. [33], indicated that food employees should immediately wash their hands before engaging in food preparation and working with ready-to-eat food, clean equipment, and clean utensils. Food employees should wash hands after touching bare human body parts other than clean hands and clean, exposed portions of arms, after using the restroom, after caring for or handling service animals or aquatic animals, after coughing, sneezing, using a handkerchief or disposable tissue, using tobacco, eating or drinking, after handling soiled equipment or utensils, during food preparation when removing soil and contamination to prevent cross contamination when changing tasks, when switching between working with raw food and working with ready-to-eat food, before putting on gloves for working with food, and lastly, after engaging in other activities that contaminate the hands [33].

As simple as the act of hand washing may seem, the development and supervision of this behavior is detrimental in the prevention of food borne illnesses in foodservice establishments. Managers must train food handlers when and how to wash their hands properly, and then must monitor hand washing frequency [34]. Vigorous hand washing with soap, performed consistently at appropriate intervals, is necessary to control the spread of all enteric pathogens [34].

interested in. Population is the total collection of elements about which we wish to make some inferences. The target population for this study comprised all kitchen staff in the selected schools in the Asuogyaman District of Eastern Region.

The Asougyamam District has Atimpoku as its capital town. According to the District agriculture profile, the approximated size of the district is 1507 sq. km (Approx. 580 sq. miles) and is located on Latitude 6° 34' North and 6° 10' North, Longitude 0° 1' west and 0° 14' East with a population of 76,120. There are eight Senior high schools in the District, out of these three are private owned and the rest are public owned.

Sample Size and Sampling Technique

According to [38] a sample is a group in a research study from which information is obtained. One of the most important steps in the research process is to select the sample of individuals who will participate as a part of the study. In this study a sample of 65 respondents were selected purposively to participate in the study that comprised of 46 females and 19 males. These two schools were selected from others in the district because of food poisoning related diseases are commonly reported among students from these schools. A purposive sampling technique was employed to select the study respondents. The power of Purposive sample is to select rich information from participants [39]. For

Purposive sampling to be effective, participants must be identified based on qualification and characteristics they possess related to the study. Also, purposive sampling allows sampling elements judged to be typical or representative to be chosen from the population [40]. By this, the researcher purposely selects the sample for the study based on his expert judgment of the population taking into account the objectives of the research.

Research Instruments

The main data collection tool that was used was questionnaire. Sixty five questionnaires were used to collect information from respondents in order to get a wide range of knowledge on opinions and views on the issue under investigation. Structured questionnaires were used to reduce cost, save time and avoid prejudice. The questions comprised closed and open-ended questions. Seventy questionnaires designed for the study were of four Sections. Section A was designed to illicit information from the kitchen staffs' background data of sex, age group, working experience, level of educational status, marital status and ethnic background.

The Section B was to gather information on the food safety. The researcher constructed a questionnaire that had closed ended questions, which were designed to obtain information and data from the respondents. Structured questionnaires were preferred by the researcher because of its advantages like; easy to administer on a large population. Questionnaires require less time and money compared to other methods like focus group discussions [38]. The questionnaire was a 3-point likert scale (1= Right, 2 = Wrong and 3 = Do not know). The questionnaire consisted of 15 items.

The section C was to gather information on the kitchen staff attitude and practices. The questionnaire consisted of 18 items. The items 1 to 8 measured food safety attitudes of the kitchen staff, while items 9 to 16 also measured food safety practices of the kitchen staff. Section D gathers data on factors influencing kitchen staff knowledge, attitude and practices. This question comprised of five optional items

on which the respondents opted to indicate one which she or he thinks influencing kitchen staff knowledge, attitude and practices.

Data Collection Procedure

Before the administration of the instruments, verbal consent was obtained from each of the respondents. This was backed with a letter of introduction from the researcher to Head of Department to enable the researcher to collect the data without hindrances. This letter contained information about the researcher and the purpose of gathering the data ensured a smooth and cordial interaction with the respondents. After the permission from the heads of the selected schools, the researcher personally visited the selected schools and contacted their participants upon their agreement. The researcher collected the questionnaire later when he was informed about the completion of the instrument.

Data Analysis Procedure

Data collected were edited to check consistencies and open ended questions were coded and entered by using SPSS (Statistical Package for Social Science) for analysis. Percentages, means and standard deviation were generated while the findings or results were presented in tables and charts.

Ethical Considerations

In all sixty five (65) copies of questionnaires were given out to the respondents in the selected schools. Before the distribution of the questionnaires the researcher visited the various schools one after the other, on different date. At each school, the researcher sought permission from the Headmasters to involve the kitchen staff in the study. The researcher explained the purpose of the study and assured participants of anonymity and confidentiality. The researcher negotiated time for the collection of the completed questionnaires with the participants. Three days after the distribution of the questionnaires, the researcher went back and collected the completed questionnaires for analysis. All the copies of the questionnaires were collected from the participants.

IV RESULTS AND DISCUSSIONS

4.1. Demographic Characteristics of Respondents

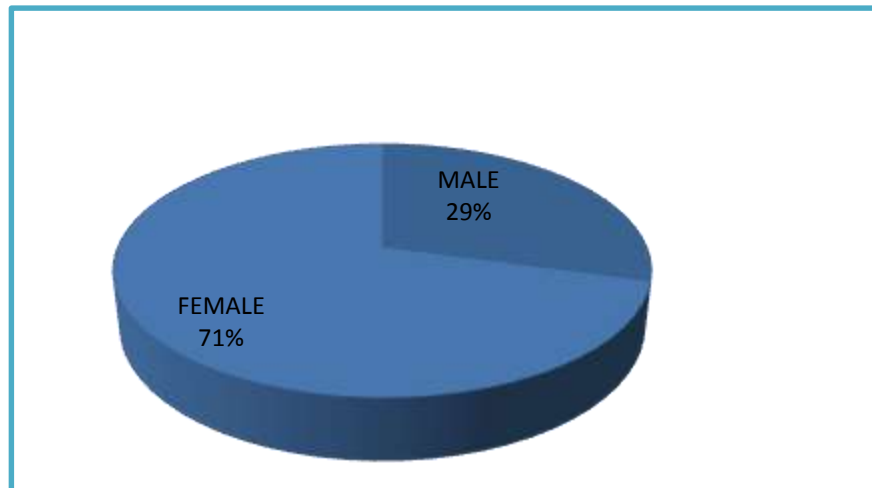


Figure: 1 Sex distributions of the respondents
Source: Field data 2014

Figure 1 below indicates the sex distribution of the respondents. Majority (71%) of the respondents are female and more than twice of that of the male (29%).This means

that a lot of females are working at the kitchen department of the two institution

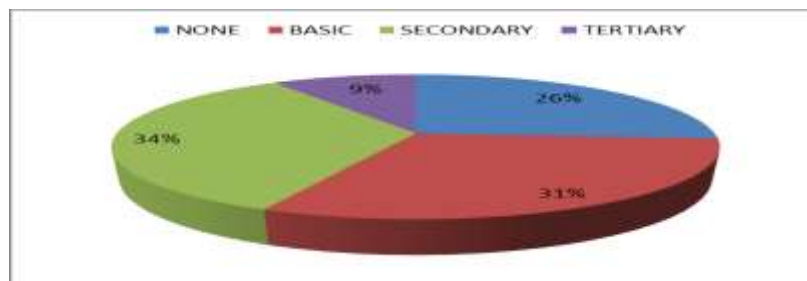


Figure: 2 Educational status of the respondents.
Source: Field data 2014

Figure 2 shows the educational status of the respondents. Majority of the respondents (33.8%) acquired secondary education whiles the least (9.2%) were first

degree holders. The respondents (30.8%) had basic education and (26.2%) had no formal education. This means that most of the respondents acquired formal education.

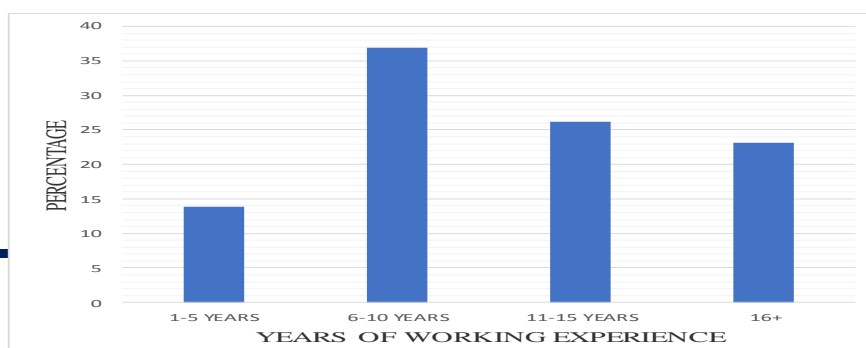


Figure: 3 Respondents' years of working experience.
Source: Field data 2014

With regard to working experience of the respondents, Figure 4 below indicates that (13.8%) were the least that reported that they have worked between the years 1 to 5, while majority (36.9%) indicated that they have worked for

the years between 6 to 10 years. Furthermore, (26.2%) also reported that they have worked between the years of 11 to 15 years and (23.1%) indicated that they have worked for 16 years and above.

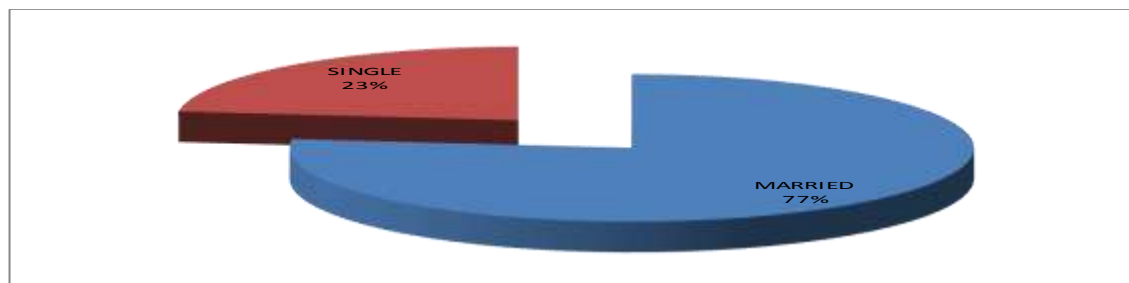


Figure: 4 Marital status of the respondents
Source: Field data 2014

Concerning the respondents marital statuses, majority (76.9%) were married, while less than half of the respondents (23.1%) were single. This is depicting that majority of the kitchen staff were from intact home.

Table 1: Ethnic Background of Respondents

Ethnic group	Frequency	Percentage
Akan	35	53.8
Ewe	22	33.8
Ga/Adangbe	6	9.2
Others	2	3.1
Total	65	100.0

Source: Field data 2014

Table 1 below shows the ethnic background of the respondents, (53.8%) forming the majority belongs to Akan, while (33.8%) also reported that they are Ewes. This was due to the closeness of the two schools to Volta Region and

also the dominance of Ewes in the Asuogyaman District. More also (9.2%) indicated that they are Ga/Adangbe and the least (3.1%) belongs to other ethnic groups.

Level of knowledge on food safety by the kitchen staff

This section asked the kitchen staff to rate their level of knowledge on food safety with a number of statements on a scale of 1 to 3, where 1 = Wrong, 2 = Do not Know and 3 = Right. The intent was to identify the knowledge on food safety by the kitchen staff.

With reference to a range of scores provided by the researcher to classify scores as high, moderate and low. This

scale has a maximum score of 45, which is regarded to be a very high level of satisfaction, and a minimum of 15.

The scale developed by the researcher was used in the study to measure the level of knowledge on food safety by the kitchen staff. It consisted of 15 statements and had a three-point scale such as "Right", "Do Not Know", "Wrong" with scoring as 3, 2 and 1 respectively. The range of the scores was 15 to 45. Based on the total scores, the level of

knowledge and understanding on food safety by the kitchen

staff was quantified as follows.

Table 2: Categories of Level of knowledge on food safety by the kitchen staff

Category	Range	Mean
Low Level	1-15	0.00 – 1.00
Moderate Level	16 - 30	1.01 – 2.00
High Level	31- 45	2.01 – 3.00

Source: Field data 2014

Table 2 revealed the mean of level of kitchen staff and the levels of knowledge and food safety of each item. Low Level category had a range between (1-15) with the mean score

between (0.00 – 1.00). Again, majority of the kitchen staff have high level of knowledge regarding food safety practices.

Table 3: Level of knowledge on food safety by the kitchen staff

Knowledge	Mean	Standard Deviation	Levels
1.Preparation of food in advance contribute to food poisoning	1.11	0.31	Moderate
2.Use of hand Gloves for hygiene	1.20	0.40	Moderate
3.Discharged of expired packed food	1.09	0.29	Moderate
4.Reheating Food	1.00	0.00	Low
5.Hand Washing before preparing food	2.18	0.77	High
6.Sources of information on food safety	1.00	0.00	Low
7.Stored water in clean container	1.95	0.76	Moderate
8.Stored food in clean container	1.52	0.50	Moderate
9. Kept food in containers with tight covers	1.42	0.50	Moderate
10.Washed hands after touching money	1.00	0.00	Low
11.Raw food of animal origin should be displayed in chillers	1.37	0.49	Moderate
12.Fresh fish should be displayed in ice	1.52	0.50	Moderate
13.Cooked food should not be stored hot in chillers	2.02	0.70	High
14.Firstly purchased food should be consumed first	1.00	0.00	Low
15.Grossly unspoiled food can cause food poisoning	1.42	0.50	Moderate
Grand Mean/Standard Deviation/Level	1.31	0.38	Moderate

Field data 2014

In response to the question on the level of kitchen staff knowledge and understanding on food safety, Table 3 illustrates that the kitchen staff had highly knowledge and understanding on food safety on Hand Washing before preparing food and also aware that cooked food should not be stored hot in chillers with mean and standard deviation of (Mean = 2.18, SD = 0.77 and Mean = 2.02, SD = 0.70) respectively. On the whole, the grand mean was 1.31 which falls within the category of moderate level. This shows that

the level of knowledge by the kitchen staff in the two schools was moderate.

The current attitudes and hygienic practices of food safety by the kitchen staff

One core specific objective of this study was to find out the current attitudes and hygienic practices of food safety by the kitchen staff. This research question was intended to find out the current attitudes and hygienic practices of food safety

by the kitchen staff. The researcher administered questionnaires to respondents and their responses given were

presented in Table 4

Table 4: Food safety attitudes of the kitchen staff

Statements	Wrong	Do not Know	Right
1. Well-cooked foods are free of contamination.	3(4.6)	5(7.7)	57(87.7)
2 Proper hand hygiene can prevent food-borne diseases.	--(--)	6(9.2)	59(90.8)
3 Raw and cooked foods should be stored separately to reduce the risk of food contamination.	2(3.1)	3(4.6)	60(92.3)
4 It is necessary to check the temperature of refrigerators/freezers periodically to reduce the risk of food contamination.	3(4.6)	7(10.8)	55(84.6)
5. Defrosted foods can be refrozen.	2(3.1)	9(13.8)	54(83.1)
6. The health status of workers should be evaluated before employment.	1(1.5)	2(3.1)	62(95.4)
7. Knives and cutting boards should be properly sanitized to prevent cross contamination.	1(1.5)	2(3.1)	62(95.4)
8. Food handlers who have abrasions or cuts on their hands should not touch foods without gloves	1(1.5)	--(--)	64(98.5)

Source: Field data 2014

As shown in table 4 above, 57(87.7%) indicated that well-cooked foods are free of contamination was right, 5(7.7%) did not know while 3 of them representing 4.6% responded that it was wrong. The table 4 further shows that 59(90.8%) of the participants said that it was right, 6(9.2%) claimed that they did not know, while none of them showed that it was wrong.

Table 4 further indicates that 60(92.3%) of the respondents reported that raw and cooked foods should be stored separately to reduce the risk of food contamination was right, 3(4.6%) did not know while 2 of them representing 3.1% claimed that it was wrong. In addition, Table 4 further indicates that 55(84.6%) of the respondents reported that it is necessary to check the temperature of refrigerators/freezers periodically to reduce the risk of food contamination was right, 7(10.8%) did not know while 3 of them representing 4.6% claimed that it was wrong. Furthermore, it indicates that 54(83.1%) of the respondents reported that defrosted foods can be refrozen was right,

9(13.8%) did not know while 2 of them representing 3.1% claimed that it was wrong.

When the respondents were asked if the health status of workers should be evaluated before employment, 62 of them representing 95.4% indicated that it was right, 2(3.1%) did not know, while 1(1.5%) indicated that it was wrong. The table further revealed significant information on the respondents view on knives and cutting boards should be properly sanitized to prevent cross contamination. Out of the 65 participants, 62 of them representing 95.4% responded that it was right, 2(3.1%) said that they did not know, while 1 of them representing 1.5% claimed that it was wrong.

Lastly, table 4 indicates that 64(98.5%) of the respondents reported that food handlers who have abrasions or cuts on their hands should not touch foods without gloves was right, none of them indicated that they did not know while 1 of them representing 1.5% claimed that it was wrong. The researcher further wanted to find out the kitchen staff food safety practices and their responses were presented in table 5.

Table 5: Food safety practices of the kitchen staff

Statements	Wrong	Do not know	Right
1. Use gloves during the distribution of unpacked foods	6(9.2)	--(--)	59(90.8)
2. Wash your hands properly before using gloves	7(10.8)	--(--)	58(89.2)
3. Wear an apron while working	13(20)	--(--)	52(80)

4. Wash your hands properly before touching raw foods	4(6.1)	--(--)	61(93.8)
5. Wash your hands properly after touching raw foods	2(3.1)	--(--)	63(96.9)
6. Taste the food with your hand cupped	8(12.3)	--(--)	57(87.7)
7. Properly clean the food storage area before storing new products	10(15.4)	--(--)	55(84.6)
8. Check the packing integrity of foods at the time of delivery	11(16.9)	--(--)	54(83.1)

Source: Field data 2014

As shown in table 5 above, (90.8%) indicated that using gloves during the distribution of unpacked foods was right, while 6 of them representing 9.2% responded that it was wrong. The table further shows that 58(89.2%) of the participants said that washing hands properly before using gloves it was right, while 7(10.8%) claimed that it was wrong.

Table 5 further indicates that 52(80%) of the respondents reported that wearing an apron while working was right, while 13 of them representing 20% claimed that it was wrong. In addition, It further indicates that 61(93.8%) of the respondents reported that Washing hands properly before touching raw foods was right, while 4 of them representing 6.1% claimed that it was wrong. Furthermore, table 5 indicates that 63(96.9%) of the respondents reported that

washing hands properly after touching raw foods was right, while 2 of them representing 3.1% claimed that it was wrong.

When the respondents were asked if they taste the food with your hand cupped 57(87.7%) indicated that it was right, while 8(12.3%) indicated that it was wrong. The table further revealed significant information on the respondents view on properly cleaning of the food storage area before storing new products and, 55 of them representing 84.6% responded that it was right, while 10 of them representing 15.4% claimed that it was wrong. Lastly, table 5 indicates that 54(83.1%) of the respondents reported that check the packing integrity of foods at the time of delivery was right, while 11 of them representing 16.9% indicated that it was wrong.

Table 6: Comparison of kitchen staff knowledge, attitude and practices of food safety

Items Factors	Grand Mean	Grand Standard deviation	Severity Rank
Knowledge	2.57	0.83	3rd
Attitude	2.83	0.79	1 st
Practices	2.94	0.43	2 nd

Source: Field data 2014

The grand mean (2.94) and grand standard deviation (0.43) in the table 6 above clearly depicts that the administrative factors are severe than the others followed by the social factors that has a grand mean of (2.83) and a grand

standard deviation of (0.79). The same table further shows that, the impact of the socio-cultural factors is better than the economic as the grand mean (2.57) and grand standard deviations (0.83) clearly depict.

The level of knowledge on food safety by kitchen staff

The first research question that sought to find out the level of knowledge on food safety by the kitchen staff revealed that the level of knowledge on food safety by the kitchen staff was moderate. This finding was in line with that of [40] who claimed that the educational background of kitchen staff in most under developed countries are moderate, and concluded that this in turn affect their knowledge on food safety. [41], stated that the knowledge

of kitchen staff in food safety depends on the facilities or equipment provided in the kitchen environment such as proper disposal of waste products, water supply, ventilation, vector and rodent control and hand washing facilities.

The finding of this study also concur with that of [42], who also perceived that the moderate level of kitchen staff knowledge was as a result of ineffective training on the job.

He further emphasized that kitchen staff hardly embarks on in – service training which in turn decline their accrued knowledge on food knowledge.

Current Attitudes and Hygienic Practices of Food Safety by the Kitchen Staff

The second research question which sought to find out the current attitudes and hygienic practices of food safety by the kitchen staff revealed that the common attitude of the kitchen staff on food safety was that food handlers who have abrasions or cuts on their hands should not touch foods without gloves. In addition, the common practice of the kitchen staff on food safety was that the kitchen staff wash their hands properly after touching raw foods. This finding concur with that of [33] who emphasized that hand washing has been recognized as an essential component in the prevention of the spread of microbial infection and further concluded that inadequate hand washing among food handlers contributes to food-borne illness.

thrown out when they become dirty. He therefore recommended that management should provide kitchen workers with non-latex gloves because latex gloves might cause allergic reactions in some workers. [16] also claimed that kitchen staff should always change gloves when they tear; before beginning a new task; every four hours when doing the same task; and after handling raw meat or fish.

VI RECOMMENDATIONS

Considering the major findings from the research, the following recommendations are made for consideration. These recommendations, if implemented, will help enhance the kitchen staff knowledge, attitude and practices of food safety.

1. School administrators should organize workshops or seminars for kitchen staff in order to boost their knowledge, attitudes and practices in the food safety.
2. Additionally, institutions should establish a student and staff committee for monitoring food safety in their schools.
3. Hazard Analysis Critical Control Points (HACCP) principles/ approach should be made an integral part of any food safety programme of all educational institutions which provide food services to the students.

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This finding also collaborate with that of [43] who claimed that approximately 25% of food contamination is attributable to improper hand washing and suggested that hands of food handlers should therefore be washed regularly with soap in clean potable water, especially before starting to handle food, after going to the toilet and after handling raw food, food waste or chemicals to avoid food – borne illness.

With regard to food handlers who have abrasions or cuts on their hands should not touch foods without gloves supported that of [44] who claimed that only foodservice workers who are healthy and practice good personal hygiene should be allowed to work in your restaurant. He further emphasized that kitchen staff can contaminate food by: working while they are sick; touching sores; touching their hair; not wearing gloves over sores and wounds; and not washing their hands properly before, during, and after handling food. [45] even added that kitchen staff hands must be properly washed before a worker puts on single-use gloves and further claimed that the gloves must be

V CONCLUSION

It was concluded that Most of the kitchen staff had prior knowledge and understanding on food safety practices with regard to washing of hands properly before and after cooking. Majority of the kitchen staff were found to be female and can be attributed to the fact that food preparation and serving is viewed as a female domain whiles males work in industries and other sectors of the economy.

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