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## **ASSESSMENT OF PERSONAL AND FOOD HYGIENE PRACTICES OF FOOD HANDLERS IN EDUCATIONAL INSTITUTIONS IN THE KWAWU-EAST DISTRICT OF GHANA**

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### **Abstract**

*Food hygiene is one of the most pertinent issues in the food service industry today. This research sought to assess the personal and food hygiene practices of food handlers in the three boarding educational institutions in the Kwahu- East District of the Eastern Region of Ghana. The study employed the descriptive survey design. The research instrument used was questionnaire. The data were analyzed using frequencies and percentages. Results showed that foods conveyed to the dining halls were uncovered and not served at the right temperature. Aprons and hair coverings were not worn at all times during food preparation. Only 6.6% of food handlers wore gloves while cooking. It is recommended that District Assemblies should monitor the personal and food hygiene practices of food handlers not only on the streets but also in our institutions. Hand washing basins should be fixed close to washrooms in institutions and detergent provided for proper hand washing immediately after visiting the washroom.*

**Key Words:** Food hygiene, Personal hygiene, Food handlers, Educational institutions/schools.

## **Introduction**

The high incidence of food-borne illnesses has led to global concern about food safety (Tonder, Lues & Theron, 2007). Food safety is a worrying issue particularly when the environment in which the food is handled is heavily contaminated. Food contamination may occur at any point during its journey through production, processing, distribution and preparation (Green, *al.*, 2005). In all these stages, it is the neglect of the food by the handler that causes contamination. It is, therefore, right if Mead, et al., (1999) states that contaminated food can result from the health status of the food handler, his or her personal hygiene practices and the awareness and practice of food hygiene. Practices identified as contributing to outbreaks in schools include improper refrigeration, prolonged handling and inadequate reheating of cooked food and contamination of food by food handlers who worked while ill or had poor personal hygiene (Hedberg et al., 2006).

Bryan, (1988) indicates that most outbreaks of food borne diseases can be prevented if all food handlers understand the importance of unfailing adherence to correct food hygiene practices. Unhygienic food has the potential to cause serious epidemics of infectious diseases such as cholera, typhoid fever and bacillary dysentery. Several food- borne disease outbreaks have been reported to be associated with poor personal hygiene of food handlers.

Students complain of stomachache coupled with diarrhoea every now and then but normally, nobody associates them with food-borne illnesses. Alarming reports received from institutions worldwide are true indications of the gravity of the matter (Angellilo, Viggiani, Rizzio & Bianco, 2000; Daily Graphic, 2011; Joy Online, 2011).

In 2010, a report was made in a Ghana Daily Graphic by Asiedu Marfo that about 100 students of Archbishop Porters Girls' Senior High School in Takoradi, Ghana were rushed to the hospital for suffering from suspected to be suffering from food poisoning. Online news from myjoyonline.com in 2010 also reported of suspected food poisoning at a primary school in Madina, a suburb

Assesment of Personal and food hygiene practices of food handlers in Educational Institution in the Kwawu-East District of Ghana of Accra, Ghana. About twenty pupils were rushed to a polyclinic where doctors suspected food poisoning.

Food handlers are supposed to have gone through at least personal hygiene training; however this is not the case in most boarding institutions in Ghana. Some aspects of hygiene are neglected to the detriment of consumers, hence the need for consistent training. These are similar situations prevailing in the three institutions under study. There are lots of research works on ensuring sanitation in primary schools, hospitals and hotels worldwide (Okojie, Wagbatsoma & Ighoroge, 2005). However, studies to improve upon the hygienic practices of food handlers in boarding institutions in Ghana are minimal especially, in Abetifi. Although there was a cholera outbreak in Abetifi long ago which rendered some students victims, there has been no study conducted to find out the hygienic practices of food handlers in Abetifi boarding institutions.

## **Research Questions**

1. What are the personal hygiene practices of food handlers in the three educational institutions in Kwahu-East District?
2. What are the food hygiene practices of food handlers in the three educational institutions in Kwahu-East District?

## **Methodology**

### **Research Design**

The descriptive research design was used because the main purpose of the research was to investigate into the hygienic practices of food handlers in the three boarding institutions (one College of Education and two Senior High Schools). Cohen, Morrison, and Manion (2004) have indicated that in descriptive survey design, researchers gather data at a particular point in time with the intention of describing the nature of existing conditions or identifying standards against which existing conditions can be compared.

The population of the study consists of all food handlers and students in the Kwahu-East District. The sample size for the study was 226. This comprised 30 food handlers, 10 from each institution and 196 students from the three boarding institutions in Abetifi. The simple random sampling method was used selecting respondents for the study.

### **Data collection instrument**

Questionnaire was used in data collection. Two set of questionnaires were used to obtain responses from both the food handlers and the students. The questionnaire for the food handlers consisted of thirty one close-ended items. The socio-demographic characteristics, personal hygiene and food hygiene practices were examined from it. The questionnaire for the students consisted of seventeen items. It was based on their socio-demographic characteristics and observed personal and food hygiene practices of food handlers in their institutions. Questionnaire was used because it served as a highly appropriate method capable of generating and gathering the necessary information for the purpose of the study.

The questionnaires used were pre-tested on 30 students and 20 food handlers who were not part of the actual study at Nkwatia Presbyterian Senior High School. The purposes of the pretesting were to assess the clarity of the questions and to determine the time required, as it was important that they were completed on time. The Cronbach's alpha coefficient was used to determine the reliability of the instruments. They yielded a reliability of 0.72 and 0.76 for the food handlers and the students respectively.

## **Results**

### **Socio-Demographic Data**

Socio-demographic characteristics of both food handlers and students were analysed. These included their gender, age, level of education and occupation. The result is presented in Table 1.

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Table 1- *Socio-Demographic Distribution of Respondents*

Characteristics	Food handlers		Students	
	n	%	n	%
<b>Gender</b>				
Male	10	33.0	98	50.0
Female	20	67.0	98	50.0
<b>Age</b>				
20yrs and below	0	0.0	56	28.6
21-30	6	20.0	140	71.4
31-40	15	50.0	0	0.0
41-50	6	20.0	0	0.0
51-60	3	10.0	0	0.0
<b>Educational level</b>				
No formal educ.	1	3.3	0	0.0
Primary sch.	3	10.0	0	0.0
Middle/JHS	14	46.7	0	0.0
Secondary/SHS	5	16.7	126	64.3
College of Educ.	0	0.0	70	35.7
Polytechnic	7	23.3	0	0.0
<b>Occupation</b>				
Domestic Bursar	3	10.0	-	-
Matron	5	16.7	-	-
Store Keeper	1	3.3	-	-
Cooks	13	43.3	-	-
Pantry Hand	8	26.7	-	-

From Table 1, it can be seen that out of the 30 food handlers, 10(33%) were males and 20 representing 67% were females. On the part of students, both males and females were equally sampled; there were 98 males and 98 females.

In addition, 6 food handlers representing 20% were below the age of 30, 15, representing 50% were between the ages of 31-40, six, representing 20% were between the ages of 41-50. Only three (10%) out of the 30 were between the ages of 51-60. The students were as expected younger than the food handlers. 56 of them (28.6%) were below the ages of 20 and 71.4% were between the ages of 21-25.

Table 1 further revealed that only one food handler, representing 3.3% was without formal education, and 3 (10%) respondents had primary education. There were 14 food handlers who had middle school or Junior High School (JHS) education, representing 46.7%. Those with Senior High School (SHS) and Polytechnic education were 5, representing 16.7% and 7, representing 23.3% respectively. Students on the other hand were from only SHS and the College of Education levels. 126 (64.3%) were from Abetifi Presbyterian Secondary School and Abetifi Technical Institute while 70 (35.7%) were from the College of Education.

With respect to their occupation, amongst the food handlers, 3 representing 10% were domestic bursars; 5 representing 16.7% were matrons, 1 representing 3.3% a store keeper, 13 representing 43.3% cooks and 8 representing 26.7% pantry hands.

**Research Question 1:** What are the personal hygiene practices of food handlers in the three educational institutions in Kwahu-East District?

Table 2 is used to answer research question one.

**Table 2- The Personal Hygiene Practice of Food Handlers**

Practices	Responses						Total
	Yes		No				
	n	%	n	%	n	%	
Washing of hands before commencing work	28	93.3	2	6.7	30	100	
Washing of hands after using the toilet	29	93.7	1	3.3	30	100	

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Washing of hands after handling raw food	24	80.0	6	20.0	30	100
Washing of hands after blowing the nose	20	66.7	10	33.3	30	100
Washing of hands after sweeping	21	70.0	9	30.0	30	100
Soap used for washing hands	19	63.3	11	36.7	30	100
Wear long nails	17	56.7	13	43.3	30	100

From Table 2, it can be seen that 28 food handlers, representing 93.3% said they washed their hands before commencing work while 2 (6.7%) said they did not. Almost all of them, (96.7%) washed their hands after visiting the toilet while only 1 of them (3.3%) did not do so. Twenty - four food handlers representing 80%, washed their hands after handling raw food while six, representing 20% did not. Twenty - nine food handlers, representing 66.7% washed their hands after blowing their nose but one of them representing 33.3% did not do so. In the case of washing of hands after sweeping, 21 of them representing 70% said they did so while 9 representing 30% of them did not. Out of the 30 food handlers, 19 (63.3%) used soap in washing their hands. The rest, (36.7%) did not mind using only water. Seventeen food handlers representing 56.7% wore long nails while the rest (45.3) kept them short.

**Research Question 2:** What are the food hygiene practices of food handlers in the three educational institutions in Kwahu-East District?

Tables 3, 4 and 5 are used to answer research question two.

Table 3- *Wearing of Protective Clothing for Work*



Characteristics		Food handlers					
		Students' comments				Yes	
No	Sometimes	Yes		No		Yes	
n	%	n	%	n	%	n	%
Apron /overall	26	86.7	4	13.3	63	32.1	
77	39.3	56	28.6				
Hair cap/scarf/net	24	80.0	6	20.0	56	28.6	
77	39.3	63	32.1				
Gloves	2	6.7	28	93.3	0	0.0	
0	0.0	196	100.0				
Protective Shoes	1	3.3	29	96.7	-	-	
-	-	-	-				

From Table 3, it can be seen that 26 of the food handlers representing 86.7% stated they wore aprons or overalls when cooking while the remaining 4 representing 13.3% did not wear them. Sixty three of the 196 students (32.1%) confirmed that the food handlers use aprons or overalls while 77, (39.3%) said they did not see the food handlers wearing them. Fifty -six of the students (28.6%) said food handlers wore aprons or overalls at times (but not always) when cooking.

Table 3 again indicates that 24 (80%) food handlers claimed they cover their hair while cooking. The students however noted that not even half of the food handlers were seen continuously covering their hair. Fifty -six (28.6%) of the students said they saw them covering their hair while 77, representing 39.3% said they did not use hair coverings. Sixty - three (32.1%) of the students claimed they at times saw the food handlers covering their hair whilst cooking. A large proportion (93.3%) of food handlers testified that, they were not using gloves. None of the students however saw them (food handlers) using gloves. Only one food handler, representing 3.3% admitted wearing protective shoes so the rest were not.

Table 4- *Condition of Food Served to Students*

Practices	Food handlers							
	Students				Food handlers			
	Yes		No		Sometimes		Yes	
	n	%	n	%	n	%	n	%
Hot foods served	20	66.7	1	3.3	9	30	63	32.1
Convey food covered	16	55.2	14	44.8	0	0.0	28	14.3
Physical hazard in food	-	-	-	-	-	-	56	28.6

Table 4 highlights the condition of food served in the dining hall. Twenty (66.7%) of the food handlers revealed that they served foods hot. Only one, representing 3.3% indicated that foods served were not hot while 9 (30%) food handlers declared that foods were served hot at times. On the other hand, 63 (32.1%) students said foods were served hot while 28, representing 14.3% said foods were not hot. Nevertheless, 105 students (53.6%) stated that foods were sometimes served hot.

Table 4 further states that about half (16), representing 55.2% of the food handlers stated that foods were conveyed covered but 14 of them representing 44.8% stated that foods were not covered when being conveyed to the dining hall. Dining halls have warm temperatures so can easily promote the growth of microbes which can lead to food poisoning. Twenty - eight (14.3%) students claimed that foods were not always covered when being conveyed to the dining hall. Fifty-six students (28.6%) claimed that physical hazards were found in their food while 84, representing 42.8% said physical hazards were not found in the food. On the other hand, 56 (28.6%) students claimed they saw physical hazards in the food at times.

Table 5- *Conditions food handlers work with*

<b>Practices</b>	<b>Food handlers</b>	
	n	%
Diarrhoea	3	10.0
Cold	6	20.0
Coughs	5	16.7
Others	15	53.3
<b>Total</b>	<b>30</b>	<b>100.00</b>

From Table 5, it can be seen that most food handlers were able to absent themselves from work when they had certain health conditions like coughs and colds but about half of the food handlers stated they had to work with other conditions that were equally contagious. The table further reveals that 6(20%) food handlers stated they could come to work when they had colds while 5 (16.7%) and 3,(10%) of them said they could come to work with coughs and diarrhoea respectively which is not ideal for handling food due to food contamination.

### **Discussion**

Food handlers in our educational institutions play a major role in meeting the food needs of students by helping them concentrate on their studies instead of going to buy food from outside. In the case of hand washing, majority of them claimed to wash their hands after visiting the washroom before commencing work and after handling raw food. Majority of the respondents indicated that they do not wear gloves when working. This means that because they at times handled raw food with their bare hands, they ended up contaminating the food. It is improper to handle raw food with bare hands because food could be easily contaminated due to improper hand washing resulting in food-borne illnesses.

Proper hand washing should be enforced to ensure food safety (Paulson *et al.*, 1999). Gloves should be worn at all times when raw food is handled but this was rarely practiced by the food handlers who were blaming school authorities for not providing them with the gloves. Authorities in our institutions are to provide gloves for all food handlers while matrons in charge are to ensure that gloves or tongs are used for handling raw foods.

Twenty - six (86.7%) of the food handlers wore aprons or overalls while 4 (13.3%) did not wear them. A shocking majority (96.7%) of them did not also have protective shoes. The wearing of unprotected shoes could result in kitchen accidents like falls, scalds and cuts. On the contrary only 32.1% of the students believed the food handlers wore aprons or overalls although 78.6% claimed they at times wore them. There is a gap between what the food handlers were saying and what the students were saying. It is believed that the food handlers for fear of painting a bad image of the institution did not truly state the facts as they are.

Despite the fact that only six of the food handlers admitted not wearing hair coverings one must not lose sight of the fact that hair could easily fall into food from these few rendering it unwholesome for consumption. With the exception of one food handler, the rest indicated they did not have the appropriate foot wear. To prevent kitchen accidents, it is envisaged that the right protective shoes are provided for all food handlers in boarding institutions.

Foods served were not hot in some instances but the food handlers' information given created a gap in what the students stated. Students stated that most foods were not served hot while most food handlers said the opposite. Food warmers should be provided in the kitchen so that foods are kept warm before consumption. Microbial growth increases in warm conditions so although foods may be prepared in batches due to inadequate equipment, they should be kept very hot.

Materials which could cause physical hazards were found in food served to students despite the fact that students indicated they were not always seen in foods. Sprenger (1991) emphasized that

food should be prevented from the risk of any harmful bacteria or microorganism and as such, they should be discarded when found.

### **Conclusions**

Good personal hygiene is a legislative requirement, ensuring safe food. Food handlers are a potential source of bacterial and physical contamination of food, and so personal hygiene is a key element in ensuring that food is prepared safely. The Environmental Health and Sanitation Department staff are to ensure that basic hygienic practices are adhered to. Any person suffering from a disease that is likely to be transmitted through food must not be allowed to cook.

Proper hand washing should also be practiced by all food handlers in our institutions in addition to good personal and food hygiene practices. It is believed that if all the suggested recommendations are adhered to, there would be healthier students in boarding institutions who would be able to fulfill their educational dreams in life.

### **Recommendations**

The officers at the Environmental Health and Sanitation Departments of District Assemblies should monitor the hygienic practices of food handlers in institutions. Hand washing basins should be fixed close to wash rooms and detergents provided for proper hand washing immediately after visiting the wash room. Also, proper hand washing techniques should be taught and practiced by all food handlers in our boarding institutions to ensure hygienic foods in institutions.

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