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Examination of hygienic practices and food safety measures among kitchen staff in selected second cycle schools in the Sunyani municipality of Ghana

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Abstract

The study examined the hygienic practices and food safety measures among kitchen staff in selected second cycle schools in Bono Region of Ghana. The researchers employed descriptive design for the study. Semi structured questionnaire was used to collect empirical data from one hundred (100) respondents working as kitchen staff in four selected second cycle institutions using a simple random technique. Microsoft excel spreadsheet and SATA 15 were used to analysis the data. The study revealed the kitchen staff age, gender, level of education, protocols and hygienic practices. The study revealed that more than half of the respondents (54%) observe the hygienic protocol as well as food safety measures. The study concludes that majority of the kitchen staff adhered to good food hygienic practices as regards washing of hands with soap and water after visiting the washing room during and after food preparation and service making use of gloves or utensils (tongs and spoons) to handle food that is ready to eat. The study recommends that authorities in educational institutions should continue to provide refresher courses on food safety and hygienic practices for their kitchen staff to provide them with the current issues on food safety and good hygienic practices.

Keywords: food safety practices, food hygiene, kitchen staff, second cycle institutions, Sunyani municipality

Introduction

On a global basis, food poisoning affects between 25% and 30% of people every year (Jacob & Powel, 2009) ^[1]. As a result, nearly everyone in both developing and developed parts of the world is at risk. According to the World Health Organization (WHO), food poisoning affects up to 1.5 billion children each year (WHO, 2005) ^[2]. Diarrhea has been identified as the most common symptom of food poisoning among children who have become unwell as a result of food poisoning in which students from second cycle institutions are involved. Food epidemiology has shown that the majority of food-borne disease outbreaks recorded around the world are caused by hazardous food handling and preparation in various establishments such as dining halls, restaurants, hotels, and canteens (Mead, *et al.* 1999) ^[3].

Food is an important basic need; it is both a contributor to and a source of physical well-being. Food acquisition, preparation, and consumption, according to Rozin *et al.*, (1999) ^[4], are essential for life support. Because of the importance of food, it is critical that it is prepared in a clean environment and also have all the nutritional components retained. Diseases spread by food, on the other hand, are a prevalent and persistent problem that cause significant morbidity and mortality (Chukwuocha *et al.*, 2009) ^[5]; Newell *et al.*, 2010) ^[6]. Food-borne infections have been recognized as one of the world's most pervasive concerns (Newell *et al.*, 2010) ^[6]. Food contamination, according to Unnevehr (2000) ^[7], is a serious and growing public health and economic problem in many nations. Traditional food processing methods, unsuitable holding temperatures, and inadequate personal hygiene of food workers all contribute to food contamination in impoverished countries. Furthermore, according to Monney *et al.*, (2013) ^[8], the frequency of food-borne illnesses in developing nations is linked to other economic and developmental challenges, such as legislation, infrastructure, and enforcement mechanisms. Food safety rules that are insufficient, regulatory enforcement that is lax and a lack of education for food handlers are just a few examples.

As a result, food safety is one of the most important health and safety challenges confronting most developing countries, as it has both public health and social implications. Everyone is at risk of contracting a food-borne illness, according to Afele (2006) ^[9], but the elderly,

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young children, pregnant women, transplant recipients, and the immune-compromised are at higher risk because their immune systems are either not fully developed or compromised by a weakened condition. Food hygiene, according to EV (2004) ^[10], is defined as the measures and circumstances required to control hazards and ensure that food stuffs are fit for human consumption, taking into mind its eventual use. Considering the importance of food, it must be prepared in a very clean setting and must have all of the essential nutritious components. Foodborne diseases, on the other hand, are a prevalent and chronic concern that cause significant morbidity and mortality (Chukwuocha *et al* 2009 ^[5]; Newell *et al*, 2010) ^[6]. In poor countries, the occurrence of food-borne illnesses is linked to other economic and developmental challenges, as well as legislation, infrastructure, and enforcement measures (Monney *et al.*, 2013) ^[8]. Food contamination can arise as a result of food safety legislation, regulatory enforcement, laxity, and a lack of food handler education. In many nations, food poisoning is a serious and growing public health and economic concern (Unevehr, 2000) ^[7]. Many factors contribute to food contamination in third-world countries, including archaic food processing methods, incorrect storage temperatures, and inadequate personal hygiene among food workers. Some cooking habits have resulted in a variety of bacteria viruses and disease outbreaks such as cholera, hepatitis, and others. Food handling errors play a significant impact in the prevalence of foodborne illness. According to Anderson *et al.* 1996^[11], improper food handling may be responsible for 97 percent of all food-borne illnesses linked with catering establishments. Microbiological dangers in the kitchen can be considerably reduced by correctly preparing food; otherwise, kitchens in hotels, second-cycle institutions, restaurants, and traditional eateries can become a major source of food contamination. The majority of food safety violations by kitchen employees in second-cycle institutions and other food outlets have been attributed to a combination of negligence and insufficient food handler training on food safety principles (Makwanda & Moyo, 2013) ^[12]. According to Makwanda & Moyo (2013) ^[12], the top food safety violations are poor cleanliness and personal hygiene of kitchen employees, as well as storing prepared meals at a hazardous temperature. Poor remuneration for most food personnel, a lack of comprehensive training on correct food handling methods, high operating costs, and a reliance on untrained kitchen staff who are unwilling to follow optimal food safety measures are the main drivers of most food violations. Food hygiene refers to the conditions and measures in place to assure food safety from the point of production to the point of consumption. Food can be contaminated at any moment throughout the slaughtering or harvesting process, as well as during processing, storage, distribution, transportation, and preparation (WHO, 1989) ^[13].

In Ghana, second cycle institutions are the next stage of education after completing basic education. Boarding or non-boarding students attend second cycle institutions. According to Boarsrde (2013) ^[14], boarding students spend the entire school year in school and only go home during vacations. Non-boarding day kids, on the other hand, live with their parents and guardians and attend school for only six hours. Students in second-cycle institutions are typically between the ages of 14 and 18. Well-managed boarding schools, according to Iyer, *et al.*, (2011) ^[25], provide

appropriate nourishment, hygiene, sanitation, a balanced daily routine of personal care, sport and recreation, and study habits that children introduce to their own homes and families, as well as to their peers.

Food safety is significantly more critical in a school context because it has a direct impact on students' academic achievement. Food-borne illness prevention is a major concern in school settings, according to Dawso Van Druff (2012) ^[16], since outbreaks have personal, academic, financial, and legal ramifications for each school district. He claims that student absenteeism has an impact on pupils' academic performance, and that a food-borne pandemic outbreak could force schools to close. Students are at danger of contracting food-borne illness if they eat or drink contaminated food or drink. The aim of the study was to examine the hygienic practices and food safety measures among kitchen staff in selected second cycle schools in the Sunyani Municipality of Ghana.

Materials and Methods

The study used a descriptive research design technique to determine the level of hygienic management and food safety practices in the kitchen employees of certain selected second cycle institutions in the Sunyani municipality. For this investigation, the descriptive technique is preferred. This method is not only less expensive, but it also takes less time to implement. This design style can be used to give information on food safety and hygiene procedures. The research was conducted in the Sunyani Municipality. Sunyani is the regional capital of Ghana's Bono region, with a population of 208,496 people (GSS 2010). For this study, two gender (boys alone or girls only) and two mixed-sex second-cycle schools were chosen. One male sex school (St. James SHS), one female sex school (Notre Dame SHS), and two mixed gender schools (Sunyani SHS and Odumaseman SHS) were used in the study using these gender base schools. The total culinary crew for the four schools is anticipated to be 120 people, according to the Sunyani municipal education directorate's population department.

To choose the culinary staff for each of the four schools, a simple random sample procedure was used. Simple random sampling is a type of probability sampling in which the researchers choose the kitchen staff in the study at random. To conduct a simple random sampling, the whole personnel of the company was assigned a number, and those employees whose numbers were chosen at random were hired to answer the questionnaire. Each school employed balloting to ensure that every kitchen staff member had an equal chance of being chosen for the study. The study used a sample size of 100 kitchen personnel. The data was collected from the respondents using a semi-structured questionnaire. The surveys were delivered to the respondents for two (2) weeks to complete. The respondents filled out the survey in a private setting, and all one hundred (100) questionnaires were collected.

The data for the study was coded and meticulously put into a Microsoft Excel spreadsheet, and the data was analyzed using SATA 15. By exhibiting the results, frequency distribution tables, bar charts, pie charts, and percentages were employed to describe the data. Strongly Agreed = 1, Agreed = 2, Neither Agreed nor Disagreed = 3, Disagreed = 4, and Strongly Disagreed = 5 on the likert scale were used. Mean values less than 3 neither decided indicate higher respondents' knowledge of protocol and hygiene practice,

whilst values larger than 3 neither decided indicate lower respondents' knowledge of protocol and hygiene practice. Before conducting the study in these selected schools, the researchers received consent from the Bono regional education directorate via the Sunyani municipal education directorate. Following the approval, meetings with the various school heads on the subject were scheduled.

Results and Discussion

Demography of respondents

The result on gender indicated that 65% were females whilst 35% were males. This was in line with findings from Lues (2015) [17] who found cooking for the public to be a job for women is common in developing countries. Mostly, females are very cautious in terms of kitchen hygiene and safety since they do not want to feed family with unhygienic foods. With regard to age distribution of the respondents, it was revealed that 36% were within the ages of 36-40years, 17% within 31-35years, 18% were within 41 and above and 12% were within 21-25years. Interestingly, respondents below 20years were not found among kitchen staff in the second cycle institutions since the schools authority regards it as a

form of child labour. This confirms the study by Musa & Akonde (2003) [18] who found a low level of involvement of underage food vendors in educational institutions in Iloring, Nigeria. It is often assumed that individuals within the age bracket of 36-40 years are likely to observed personal hygiene due to their maturity. With the educational level of respondents, it was revealed that 55% had no formal education 29% with basic education, 15% had secondary education and 1% had tertiary education. Respondents with formal education were likely to practice good kitchen hygiene due to their in-depth knowledge on the effect of poor kitchen hygiene. With respondent's marital status, the current research revealed that half of the respondents 50%, were married, followed by 30% being single and 20% were divorced. The probable reason might be that, those who were married do the work as source of income generation to support their family and also have experience of good hygienic practices at the kitchen in their marriages (Tessema *et al.* 2014) [19]. Therefore those respondents who were married are likely to adhere to good hygienic practices at the kitchen than the other respondents.

Table 1: Demographic Characteristics of respondents

Variables	Frequency (<i>f</i>)	Percentage (%)
Gender		
Male	35	35%
Female	65	65%
Total	100	100%
Age		
21 - 25 years		
31 – 35 years	12	12%
36 – 40 years	36	36%
41 and above	18	18%
Total	100	100%
Educational Level		
Basic School	29	29%
Secondary School	15	15%
No formal Education	55	55%
Tertiary Education	1	1%
Total	100	100%
Marital Status		
Married	50	50%
Single	30	30%
Divorced	20	20%
Total	100	100%

Protocol and Hygiene Practice of Respondents

Hygienic practices and food safety training are said to be important tool needed to create awareness among food services workers about hazard associated with food and the safety practices that must be used to prevent food borne illness (Bryan & Madelen, 2003) [20] on the issue of given education on food safety to kitchen staff to prevent food borne diseases, 35% strongly agreed, 29% agreed, 27% neither agreed nor disagree and 9% disagreed, with the mean of 1.8. This implies quiet large number of respondent acknowledged the essence of food safety education. Respondents were further asked if all dining halls should be given hand washing basins with running water and soap revealed 55% strongly agreed, 27% agreed, 13 neither agreed nor disagreed and 10% disagreed with 1.88 as mean. This finding is not in support with a study conducted by Sneed *et al.* (2004) [21] who revealed that some kitchen staff does not wash their hands properly before coming into

contact with food. With respect to keeping kitchen equipment's clean all the time revealed 70% agreed, 21% strongly agreed and 9% disagreed with 1.94 as mean. This is an indication that, of the respondents understand the importance of keeping their kitchen equipment's clean and will positively affect their hygienic practices during food preparation, this therefore is in line with Sneed *et al.* (2014) [21] who said surfaces and utensils used to prepare food should be kept clean and regularly disinfected.

Respondents were asked if food service department has a major role to improve standard of food safety in the second cycle institutions, revealed more than half 56% strongly agreed, 14% agreed, and 30% neither agreed nor disagreed with the mean of 1.74. This is an indication that more than of the respondents knew they had a major role in improving standard of food safety therefore must do their quota to improve food safety and hygiene. This is in line with a study conducted by Monney *et al.* (2013) [22] who observed that

employees' food safety knowledge does not always translate in to good food safety practices. Respondents were again asked to know if kitchen staffs sometimes exhibit undesirable food safety practices, to which 59% strongly agreed, 11% agreed and 30% disagreed with 2.7 as mean. This confirmed more than half of the respondents accepted their undesirable practices in the kitchen which will eventually affect the safety practices in the kitchen. This is supported with a research work conducted by Lynch *et al* (2006)^[23] who observed that the food handlers mostly exhibit undesirable practices such as using contaminated equipment's and food from unsafe source could be detrimental to the safety of food in the kitchen. All kitchen staff should cover their hair during food preparation was discussed and revealed that, 73% strongly agreed 20% disagreed and 7% agreed, with 1.67 as mean. This shows the

respondents attached high importance of covering their hair during food preparation and handling which will positively affect their hygienic and safety practices. However, the finding is not in support with the study conducted by Trepka *et al* (2006) ^[24], who stated that most kitchen staff always handle foods without covering their and are likely to contaminate their foods. Findings on whether kitchen staff should be given education on food safety to prevent food borne disease revealed, 70% strongly agree, agreed, 5% neither agreed nor disagreed and 15% disagreed, with the mean of 1.8. This indicates that, most respondents were interested in getting more knowledge on kitchen hygiene and it is supported with a study conducted by Boarsrde (2013) ^[14] who staff are interested in gaining education on food safety.

Table 2: Protocol and Hygiene Practice of Respondents

Statement	SA		A		NAD		D		SD		Mean x	Total
	f	%	f	%	f	%	f	f	%	f		
Kitchen staff should be given education on food safety to prevent food borne diseases	70	70.0	10	10.0	5	5.0	0	0	15	15.0	1.8	100
All dining halls should be given hand washing basins with running water and soap dispensers	55	55.0	27	27.0	13	13.0	10	10.0	0	0	1.88	100
All dining halls should be well ventilated	21	21.0	26	26.0	18	18.0	26	26.0	9	9.0	2.55	100
Kitchen staff sometimes exhibits undesirable food safety practices	59	59.0	11	11.0	26	26.0	30	30.0	0	0	2.79	100
Food services department has a major role to improve food safety standards in the second cycle institutions	56	56.0	14	14	30	30.0	0	0	0	0	1.74	100
Kitchen staff should keep their kitchen equipment clean at all times	21	21.0	70	70.0	0	0	9	9.0	0	0	1.94	100
All kitchens staff should cover their hairs during food preparations	73	73.0	7	7.0	0	0	20	20.0	0	0	1.94	100
There should be periodic health screening among kitchen staff	30	30.0	36	36.0	18	18.0	16	16.0	0	0	2.2	100
Kitchen staff should be given in-service training on the importance of food safety	35	35.0	0	0	47	47.0	18	18.0	0	0	2.48	100

SA = Strongly Agreed A= Agreed NAD= Neither Agreed nor Disagreed D= disagreed SD= Strongly, Disagreed

Conclusions and recommendation

This study provides information about the food hygiene practices of kitchen staff in some selected second cycle institution in Sunyani West Municipal in the Bono Region of Ghana. The results shown that the kitchen staff understudied adhered to good food hygienic practices as regards washing of hands with soap and water after visiting the washing room during and after food preparation and service making use of gloves or utensils (tongs and spoons) to handle food that is ready to eat. However, the study recommends that authorities in educational institutions should continue to provide refresher courses on food safety and hygienic practices for their kitchen staff to provide them with the current issues on food safety and good hygienic practices.

References

- Jacob C, Powell D. Where does foodborne illness happen—the home, food service, elsewhere—and does it matter? *Foodborne Pathog. Dis* 2009;6:1121-1123.
- FAO/WHO. Regional Conference on Food Safety for Africa. Zimbabwe Conference Room Document on National Food Safety System: A Situational Analysis. (Prepared by the Government Analyst Laboratory and the Conference Technical Subcommittee Agenda Items), Conference Document 6, 2005.
- Mead PS, Slutsker L, Dietz V, McCaig LF, Bresee JS, Shapiro C, *et al*. Food related illnesses and deaths in the United States. *Emerging. Infectious Diseases* 1999.
- Rozin P, Lowery L, Imada S, Haidt J. The CAD triad hypothesis: a mapping between three moral emotions (contempt, anger, disgust) and three moral codes (community, autonomy, divinity). *Journal of personality and social psychology* 1999.
- Chukwuocha U, Dozie I, Amadi A, Nwankwo B, Ukaga C, Aguwa O, *et al*. The knowledge, attitude and practices of food handlers in food sanitation in a metropolis in south eastern Nigeria. *East African journal of public health* 2009,
- Newell DG, Koopmans M, Verhoef L, Duizer E, Aidara-Kane A, Sprong H, *et al*. Food-borne diseases—the challenges of 20years ago still persist while new ones continue to emerge. *International journal of food microbiology* 2010;139:S3-S15.
- Unnevehr LJ. Food safety issues and fresh food product exports from LDCs. diseases—the challenges of 20years ago still persist while new ones continue to emerge. *International journal of food microbiology* 2000;139:S3-S15.
- Monney I, Agyei D, Owusu W. Hygienic Practices among Food Vendors in Educational Institutions in Ghana: The Case of Konongo. *Food* 2013;2:282-294.

- doi:10.3390/foods2030282. (accessed 21 April 2016).
9. Monney I, Agyei D, Owusu W. Hygienic practices among food vendors in educational institutions in Ghana: the case of Konongo 2013.
 10. Afele M. Street food boom in Ghana spurs calls for better hygiene. *Bulletin of the World Health Organization* 2006;84(10).
 11. EV. European Union Council Regulation 852/2004 on the hygiene of food stuffs, official Journal of European Communities L139(2004) Brussels 2004.
 12. Anderson JB, Shuster TA, Hansen KE, Levy AS, Volk A. A camera's view of consumer food-handling behaviours. *J. Am. Diet. Assoc* 2004;104:186-191.
 13. Makwanda, Moyo. Surveillance for foodborne disease outbreaks - United States, 1988–1992. *MMWR Morb. Mortal Wkly. Rep.* 45:1-55. *British Food Journal* 2013;114(4):469-480.
 14. WHO. Health surveillance and management procedures for food-handling personnel: W11O Technical Report, 1989;785: 547.
 15. Sankaran V. Water, sanitation, hygiene and Swachh Bharat: An anthropological analysis. *Int. J Adv. Chem. Res.* 2020;2(1):13-16. DOI: 10.33545/26646781.2020.v2.i1a.17
 16. Iyer UM, Bhoite RM, Roy S. An exploratory study on the nutritional status and determinants of malnutrition of urban and rural adolescent children (12-16) years of Vadodara city 2011.
 17. Dawso Van Druff CA. Implementation of school districts' food safety plans and perceptions of support for food safety and training in child nutrition programs in one USDA region 2012.
 18. Lues JF, Van-Tonder I. The occurrence of indicator bacteria on hands and aprons of food handlers in the delicatessen section of a retail group. *Food Control* 2015;18(4):326-332.
 19. Musa OI, Akande TM. Routine medical examination of food vendors in secondary schools in Ilorin. *Nigerian Journal of Medicine* 2003;11(1):9-12.
 20. Tessema Gelaye, Chercos. Factors Affecting Food Handling Practices among Food Handlers of Dangila Town food and drink establishments, North West Ethiopia, *BMC Public Health* 2014. <http://www.blomedcentral.com/1471-2458/14/571> (accessed 15 March 2016)
 21. Bryan FL, McKinley TW, Mixon B. Use of time-temperature evaluations in detecting the responsible vehicle and contributing factors of foodborne disease outbreaks. *J. Milk Food Tech* 1971;34:579-582.
 22. Sneed J, Strohbehn CV, Gilmore SA. Food Safety Practices and readiness to implement HACCP programs in assisted – living facilities in Iowa. *Journal of the American Dietetic Association* 2004;104:1678-1683.
 23. Lynch M, Cohen E, Reichel A, Schwartz. Surveillance for Foodborne Disease Outbreaks, United States, *MMWR Surveill Summ* 2006;55:1-42.
 24. Trepka MJ, Murunga V, Cherry S, Huffman FG, Dixon Z. "Food safety beliefs and barriers to safe food handling among WIC program clients, Miami, Florida", *Journal of Nutritional Education and Behaviour* 2006;38:371-378.
 25. Boarsrde NSO. A comparative study of the dietary intake and nutritional status of boarders and nonboarders in selected second cycle institutions within

the tamale metropolis. department of community nutrition of the school of medicine and health sciences, university for development 2013.