

## Assessment of Knowledge Level of Kitchen Workers on Occupational Health and Safety in Senior High Schools in Ghana

E.K. Dzah

Department of Science, E.P. College of Education, Amedzofe, Volta Region, Ghana.

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### ABSTRACT

Occupational health and safety are important parts of every workplace environment. It involves control measures being implemented by the various organizations to mitigate accidents and risks at the workplace. This study was carried out to assess the knowledge level and understanding of occupational health and safety among kitchen staff members in some selected Senior High Schools (SHS). The study employed mixed data collection method namely questionnaire administration, personal observation and personal interviews. In all, 250 questionnaires were purposely administered to kitchen workers at the SHS and 8 in-depth interviews were conducted involving a Headmaster, Assistant headmaster and Matrons. The results from the study indicated that all the kitchen workers (100%) do not have knowledge regarding the word "occupational health and safety" and are dissatisfied about safety issues at their various school's kitchens. Furthermore, most respondents mentioned that the school management have not done any formal training for them on health and safety, and provided inadequate Personal Protection Equipment (PPEs) for usage. The study also revealed that the schools do not have health and safety policy. The study concluded that the Ministry of Education must ensure all the SHS must formulate health and safety policy and carry out formal training for various staff members in SHS schools.

**Keywords:** Health, Safety, Kitchen workers, Senior high schools, Ghana.

### 1. Introduction

Work has its positive health-promoting effects, as the financial dividends provide the worker with the basic necessities of life [1]. The aforementioned translates into healthy well-being, and ultimately higher productivity. There is however, a reciprocal relationship between the workers and the work environment [2]. The knowledge of these interactions; between work and health is fundamental in understanding and practicing occupational health and safety [3], but the importance of safety at the workplace is often overlooked. During work periods, workers are faced with a variety of hazards almost as numerous as the different types of work, including chemicals, biological agents, physical factors and adverse ergonomic conditions.

These exposures may lead to the resultant experience of occupational diseases and injuries. Although these occupational diseases appear to occur less frequently than other major debilitating diseases, there is evidence that they affect a considerable number of people, particularly in rapidly industrializing countries, hence indirectly impacting on the economy [4].

In most developing countries, occupational health and safety practices are scarcely recognized as a crucial determinant of national development [5]. Workplace activities, behaviours and practices by employees are prone to accidents. Some of the activities or behaviours include improper keeping of equipment, leaving equipment doors open, leaving lights on, slippery floors, refusal to wear Personal Protective Equipment (PPEs) etc. [6]. These actions have direct impact on health and safety of employees. The inability of most employees or workers in both informal and formal sectors to adhere or practice occupational safety measures to the highest level is inadequate health and safety education. According to Ghana Labour Act (Act 651, 2003) it is the task of the employer, employee, manufacturers and suppliers of goods and equipment to provide safe working environment and usage of

products to minimize occupational accidents and illness [7]. However, some stakeholders along the occupational health and safety chain neglect their responsibilities which results in occupational accidents, injuries and illness.

The global burden of occupational accidents, injuries and illnesses is substantial, particularly in developing countries. For example it was estimated that the rates of occupational injury and fatalities to be at least two to five times higher in developing countries relative to developed ones [8]. In addition, the associated medical and disability costs are considerable. According to a study conducted by Basori (2018), about 96,400 work accidents happened in 2011 which comprised of 2,144 dead workers and 42 workers disabled [9]. The study further indicated that until September 2012, the number of workplace accidents was around 80,000 cases. An average of 99,000 occupational accident cases have been recorded annually of which 70% of them resulted in death and life-time disability. Furthermore, nine workers die daily due to occupational accidents in the year 2013 and 80,393 occupational death cases [9].

In the USA, the total costs associated with occupational injuries and illness in 1992 were estimated to be \$171 billion, including directly accountable costs of \$65 million and a larger component of indirect costs (\$106 million) [10]. According to workers' compensation, benefits, coverage and costs in 2008, the total medical expense was \$29.1 billion and total cash benefit of \$28.6 billion was paid [11]. Estimated costs have been less well characterized in developing countries, because there are usually no large centralized record systems that include health conditions having an occupational cause [12]. Occupational health and safety (OHS) practices have generally been given little research attention in the Ghanaian formal and informal sectors. One of such place is the kitchen of Senior High Schools (SHS). SHS is a pre-tertiary level of education in Ghana. It is mostly classified as the middle level education where students are trained to acquire knowledge and skills as a pre-requisite for tertiary education. Most of the SHS in Ghana have boarding facilities where students lodge for their education [13]. As such there is a need for feeding and hence foods are prepared in the school's kitchen. Kitchens play key role in SHS administration where foods are prepared for students and must be kept clean and safe. Therefore safety practices and activities must be ensured to prevent accidents. In addition, the workers in the kitchen are exposed to a lot of hazards and there is a need to put in measures to make the kitchen environment safe for its activities.

Generally, occupational accidents emanating from a school's kitchen would come from sources such as conditions and unsafe actions of kitchen workers (i.e. human error), workers refusal to use Personal Protective Equipment (PPE) and less understanding of importance of occupational health and safety issues resulting in failure to observe basic safety practices [9, 14, 15]. In addition, it may also result from inadequate operational knowledge of modern food processing equipments. Because of occupational accidents, injuries and illnesses, countries have developed standard precautions and measures for preventing occupational exposures and handling of hazards. Adherence to the occupational health and safety guidelines have been shown to be effective in curtailing occupational, accidents, illnesses and injuries among some workplaces. However, there is little empirical research on occupational health and safety practices among kitchen workers in Ghana. Therefore, this study was conducted to assess the knowledge level and understanding of occupational health and safety among kitchen staff members in some selected SHS. Furthermore, to determine the types and frequency of work-related accidents at the schools' kitchen.

International Labour Organization [16] indicated that, there are some African countries that are refusing to provide OHS services for its public sector workers. In 2005, a global meeting was also held in Benin to review the state of occupational health and safety practices in Africa. Several observations were found and reported. First, it was revealed that most African countries have poor OHS review mechanisms; second, majority have inadequate OHS policy especially Ghana; third, some have OHS infrastructures. Against this background, there is the need for OHS investments in the areas of OHS research, OHS education, OHS policy formulation and implementation, OHS training and OHS promotion in African countries.

## **2. Motivation**

There is little empirical research on occupational health and safety practices among kitchen workers in the Ghanaian formal and informal sectors. One of such places is the kitchen of Senior High Schools (SHS) where foods are prepared for those in the boarding facilities and safety standards must be upheld. Therefore, this study was conducted to assess the knowledge level and understanding of occupational health and safety among kitchen staff members in some selected SHS. Furthermore, it is to determine the types and frequency of work-related accidents at the schools' kitchen.

## **3. Methodology**

### ***3.1 Description of Study***

The study was carried out among eight (8) selected SHS in the Ashanti Region of Ghana that operate a boarding facility. The kitchen forms a very important part of the schools as this is where meals for the students who are boarders are prepared. As such, the preparation involves the use of machines, gadgets, and other tools that present occupational safety and health concern and which must be addressed to forestall any major catastrophe in the future.

### ***3.2. Population and Sampling Technique***

The target population for the collection of data for the research are the staffs in the selected school's kitchen. The population composed of 250 kitchen staff in the selected SHS. They include cooks, corn millers, dish-washers, loaders etc., which formed the sample frame for the study. The entire population of kitchen staff were purposively sampled for the study.

### ***3.3 Data Collection Instruments***

Two main sources of data were used for the research work. (i.e. primary and secondary sources). The primary data collection sources include interview, questionnaire, and observations while the secondary data collection sources include data from school records, published works, books, magazines, journals, internet etc.

### ***3.4 Pre-Testing/ Piloting of Questionnaire***

Pre-testing of the questionnaire was conducted with few potential respondents in an informal manner from selected SHS outside the study region. This was done to determine any form of ambiguity in the questions and also determine the duration for response to the questionnaire. To address ethical issues, permission was sought from the

heads of institutions and chief matrons and the purpose of the study was explained to the kitchen staff members who responded to questionnaires.

### ***3.5 Data Collection procedure***

Three main data collection instruments were used to collect data for the study namely interviews, questionnaires and personal observation.

### ***3.6 Interviews***

Interviews were conducted for specific people who are responsible for occupational health and safety in the selected SHS. Eight (8) in-depth interviews were conducted for Headmasters, Assistant headmasters and Matrons to collect data. Both structured and unstructured interviews were used. This is to allow the respondent to express themselves freely and fully. The responses were recorded in a field study notebook.

### ***3.7 Questionnaires***

A structured questionnaire consisted of a set of questions which were self-administered to the 250 kitchen workers for answering. The researcher read the questions, interpreted to those who cannot read, and then chose their response from the multiple set of answers provided. The questions in the questionnaire took two forms; closed-ended questions and open-ended questions. The closed-ended questions include all possible answers or pre-written response categories, and respondents were asked to choose among them. The open-ended questions allow respondents to answer in their own words. The 250 questionnaires administered to the respondents were all retrieved for data analysis.

### ***3.8 Personal Observation***

The researcher was allowed into the kitchens where there was a direct observation of the general kitchen environment. In addition, safety symbols, provision of emergency exit, and waste disposal systems among others were observed. Kitchen staff compliance with safety measures in the discharge of their duties were observed as well.

### ***3.9 Data Analysis***

The questionnaires were coded and entered into Statistical Package for Social Scientists (SPSS) version 22 for detailed analysis. Frequency and percentage tables were generated from the software based on the objectives of the study.

## **4. Results and Discussion**

The demographic characteristics of the respondents were shown in Table 1. It can be observed that most of the respondents were females (78%). This clearly shows that majority of the kitchen workers in the SHS were females suggesting that kitchen work is predominately a female chore.

The result further indicated that majority of the workers (39.2%) were above 50 years and had up to basic education as their highest qualification (74.0%). In addition, majority of the respondents (30.4%) had 1-5 years working

experience as kitchen workers in the SHS. This is an indication that the population of kitchen workers were fairly elderly people, had minimum entry educational level requirement for the kitchen workers category under the Ghana Education Service and with some level of work experience as kitchen workers. The result further shows that most of the respondents (68%) understood occupational health and safety as both employees and employers welfare without involving a third party. This implies that both employees and employers have key roles to play in occupational health and safety issues.

**Table 1:** Demographic Characteristics of Respondents

<b>Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>
<b><i>Gender</i></b>		
Male	55	22
Female	195	78
<b><i>Age (years)</i></b>		
18-25	0.0	0.0
26-33	44	17.6
34-41	42	16.8
42-49	66	26.4
50 and above	98	39.2
<b><i>Educational level</i></b>		
No formal education	32	12.8
Basic education	185	74.0
Secondary education	11	4.4
Tertiary education	22	8.8
<b><i>Working Experience (years)</i></b>		
1-5	76	30.4
6-10	33	13.2
11-15	65	26.0
16-20	33	13.2
21 and above	43	17.2

The employers must provide all the safety markings and equipment while the employees must utilize the safety equipment effectively and adhere to the safety markings. The study also indicated that most of the respondents (96%) had a fair knowledge regarding health and safety issues of the kitchen.

According to the study, proper disposal of waste (39.1%), safety training as part of orientation on first employment (21.7%) and prompt reporting of accidents or injuries (39.1%) were the health and safety measures respondents mentioned persisted at the SHS kitchens. Observational study conducted by the researcher indicated that the use of Personal Protection Equipment (PPEs), regular monitoring to ensure safety compliance and refresher courses on health and safety were virtually not carried out for kitchen workers.

The study also showed that 78.3% of the respondents were dissatisfied with the health and safety issues in kitchen while 21.7% said they were satisfied. According to the study, majority of respondents (91.3%) mentioned that supervisors/matrons are the ones who have the ultimate responsibility for health and safety in the kitchens of SHS. However, all the respondents (100%) also agreed that employees have responsibility for health and safety regarding their occupation as kitchen workers. They mentioned that wearing PPE (73.9%) and the right to refuse unsafe work (26.1%) were some of the responsibilities of the employees in the kitchen.

The result also indicated that 52.2% of the respondents said they have witnessed a kitchen staff involved in an occupational accident or injury while 47.8% stated otherwise. According to the respondents, occupational accidents or injuries occur occasionally and various kitchen tasks leading to the occurrences include off-loading of foodstuffs (25%), grinding (25%), slicing/chopping (16.7%), frying (8.3%), hewing (8.3%), baking (8.3%) and serving food (8.3%).

The nature of the occupational accidents or injuries witnessed in the schools kitchens were cuts (50.0%), bruises (16.7%), sprain/strain (8.3%), burns (16.7%), and severe body pains (8.3%). There are several causes of occupational accidents or injuries in the school's kitchens. According to this study, some respondents mentioned causes of accidents in school's kitchens were non-provision of PPEs (68%), kitchen workers negligence (22%) and ignorance on health and safety (10%).

All the respondents (100%) stated that they reported accidents that occurred in the kitchens to their supervisors. However, only 50% of the cases reported were investigated while no actions were taken regarding the remaining cases reported.

#### ***4.1 Kitchen Workers Knowledge on Health and Safety Issues***

All the respondents (100%) stated that they do not have any knowledge regarding health and safety issues especially concerning safety committee, health and safety policy, regular medical examination or any health safety law in Ghana. The kitchen workers were expecting some actions regarding health and safety from the school management.

According to Table 2, the kitchen workers expect school management to be proactive in health and safety issues in the kitchen by providing all the necessary support.

**Table 2:** Expectations from School Management Regarding Health and Safety in the Kitchens of SHS

<b>Expectations</b>	<b>Frequency</b>	<b>Percentage</b>
Engagement of safety expert to design occupational health and safety plan for kitchen	43	17.2
Regularly reviewing health and safety practices in the kitchen	21	8.4
Provision of adequate PPE	11	4.4
Improve good record-keeping and sanitation	11	4.4
Creation of an enabling environment to report accidents	21	8.4
Supervision and safety management	33	13.2
All of the above	110	44
<b>Total</b>	<b>250</b>	<b>100</b>

It can be observed from Table 2 that all respondents unanimously agreed that all the above factors such as engagement of safety expert to design occupational health and safety plan for kitchen, regular reviewing of health and safety practices for the kitchen, provision of adequate PPE, good record-keeping and sanitation, creation of an enabling environment to report accidents were some of the kitchen workers' expectations from school management in order to ensure the maintenance of health and safety in the kitchen.

#### **4.2 Personal Interviews**

The interviews conducted with some key school management members indicated that all the interviewees were sure of laws and Acts regarding occupational health and safety but could not quote any into details. It was a surprise to the researcher that all the schools do not have a safety committee or coordinator to be in charge of occupational health and safety issues. However, the schools that have witnessed accidents in the kitchen were investigated by the Matrons (i.e. supervisor in-charge of the kitchen).

According to most of the interviewees (64%), their schools introduced various programs to assess health and safety of the kitchen workers to avoid the transmission of any communicable diseases on to the students through food. An interviewee mentioned name of such program in their school as Food Handlers Certificate Program, where after every six months kitchen workers were supposed to be assessed at a recognized medical facility for any symptoms of a food communicable diseases. However, this program hit a snag because neither the kitchen workers nor the school had enough funds to support the program.

All the interviewees mentioned that the school does not provide any formal health and safety training for the kitchen workers. Some interviewees said it is the responsibility of the matron to train new kitchen workers regarding some of these health and safety issues which is done appropriately. The researcher was also surprised that the school does not provide kitchen workers with adequate PPEs due to financial constraints nor have health and

safety policy too. To cure the curiosity of the researcher regarding how the schools would respond to an emergency such as fire or gas explosion, all the interviewees responded that they would contact or call the Ghana National Fire Service for assistance although they have fire extinguishers at vantage points within the school including the kitchen. According to the interviewees, most of the kitchen workers do not know how to operate the fire extinguishers and have not been trained as such.

## **5. Conclusion**

The study showed that most of the kitchen workers at the SHS were females with basic education qualification. All the kitchen respondents (100%) do not have idea about occupational health and safety in the SHS kitchens but are of the perception that it is the responsibility of both employees (i.e. the kitchen workers) and the school management. However, most of the respondents were dissatisfied with the health and safety issues in their school's kitchens such as inadequate Personal Protection Equipment (PPEs) and non-availability of safety and health policy. The study therefore recommends that the Ministry of Education in Ghana must ensure that all SHS have occupational health and safety policy which would serve as a guide for safety issues in the schools.

## **Declarations**

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This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### ***Competing Interests Statement***

The authors declare no competing financial, professional and personal interests.

### ***Consent to participate***

Not Applicable

### ***Consent for publication***

We declare that we consented for the publication of this research work.

### ***Availability of data and material***

Authors are willing to share data and material according to the relevant needs.

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